

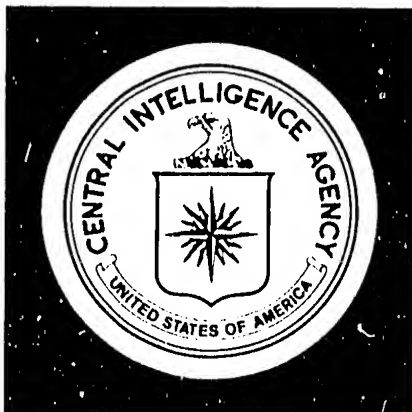
CIAOER IM 75-016  
Demand for OPEC Oil and OPEC Current Accounts, 1976-80

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ER IM 75-16

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# Intelligence Memorandum

*Demand for OPEC Oil and OPEC  
Current Accounts, 1976-80*

ER IM 75-16  
August 1975

Copy **Nº 191**

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Note to Holders of ER IM 75-16, Demand for OPEC Oil  
and OPEC Current Accounts, 1976-80, August 1975

Gabon, which joined OPEC in June 1975, is excluded from the discussion of OPEC balance of payments (paragraphs 26-39) because the trade and payments data necessary to make detailed estimates were not available. Exclusion of Gabon has little effect on the OPEC totals because production is expected to average only about 200,000 b/d during 1975-80. Gabon is therefore excluded from total OPEC exports in Table 8. Gabonese production is included in our estimate of Free World demand for OPEC oil shown in Tables 6 and 7.

### Foreword

This memorandum estimates the likely demand for OPEC oil and the balance of payments for OPEC member countries in 1976-80. It rests on analysis of trends in (a) economic activity, (b) the relationship of GNP growth to energy consumption, and (c) the supply of alternative forms of energy. It assumes a stable real price for OPEC oil – that is, a stable price in terms of all other commodities in this five-year period. It further assumes the continuation of essentially the same institutional structures that now influence the international oil trade – for example, the same degree of cohesiveness within OPEC.



**Demand for OPEC Oil  
and OPEC Current Accounts  
1976-80**

**SUMMARY**

Our analysis of the demand for OPEC oil and of the likely state of OPEC current account balances, 1976-80, yields the following major forecasts:

- a. OPEC oil earnings in current dollars will likely increase from US \$107 billion in 1975 to \$155 billion in 1980, with very little change in the physical volume of oil exports.
- b. OPEC non-oil export earnings will grow from \$6 billion in 1975 to \$19 billion in 1980.
- c. OPEC earnings from foreign investment will rise from about \$7 billion in 1975 to \$28 billion in 1980.
- d. Even with further substantial growth in their imports, OPEC countries as a group will continue to enjoy tremendous current account surpluses in this period – rising from \$49 billion in 1975 to a peak of \$59-\$65 billion in 1976-77, then falling to just over \$30 billion in 1980.
- e. Their combined official assets will mount from \$74 billion at the end of 1974 to \$350 billion by the end of 1980.

All these forecasts are in current prices. We have assumed a price increase for crude oil of \$1.50 per barrel on 1 October 1975 and constant real prices thereafter. We have also assumed a global inflation rate averaging 7%.

These huge current account surpluses and massive accumulations of foreign assets will be distributed more and more unevenly among the individual OPEC countries. This trend will simultaneously augment the economic power of the richer OPEC states, notably Saudi Arabia, and will increase the potential for divisiveness within the cartel over pricing and allocation of production.

Note: Comments and queries regarding this memorandum are welcomed. They may be directed to [REDACTED] of the Office of Economic Research, Code 143, Extensions 5321 and 7717.

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By 1980, only five OPEC states – Saudi Arabia, Kuwait, the United Arab Emirates, Iraq, and Qatar – will still have notable annual surpluses. The Saudi surplus will be almost 50% greater than the balances of all other producers. Iran will be in a strong financial position at the end of 1980. Although its current account surpluses will be greatly diminished by that time, Iran's foreign assets will total nearly \$50 billion. Libya and Nigeria will both begin running current account deficits by 1978. At the end of the decade, Libya's cumulative surplus probably will have vanished, while Nigeria's position will show some improvement. Indonesia will manage to maintain a slight current account surplus throughout the period. Algeria and Ecuador will have current account deficits throughout the period, while Venezuela will face growing pressures beginning in 1978. By 1980, the combined deficit of these last three OPEC members will probably rise to more than \$5 billion.

The estimates of OPEC oil earnings are based on our assessment of the international oil market between now and 1980. We believe that Free World imports of OPEC oil will remain in the neighborhood of 27 million barrels per day (b/d) in 1976-80 – dipping only in 1978 when Alaskan oil is expected to come on line. Energy demand in the major developed areas – the United States, Western Europe, Japan, and Canada – is predicted to grow from about 74 million b/d of oil equivalent in 1975 to 86 million b/d in 1980. Domestic production and net non-oil imports of these countries will increase from 48 million b/d of oil equivalent to 62 million b/d in that period. As a group, other developed countries, the non-OPEC LDCs, and the world shipping industry will have net oil imports of 4 million b/d in 1975 and about 3 million b/d in 1980. The Communist countries will continue to play a minor role in the international market, with net Free World imports of Communist oil rising from 1.0 million b/d in 1975 to perhaps 1.3 million b/d in 1980.

## DISCUSSION

### Demand for OPEC Oil

#### *Growth Outlook in Major Consuming Countries*

1. The economic performance of major industrial countries will be the single most important factor determining Free World oil demand over the next five years. After declining during 1974 and the first half of 1975, economic activity in most major industrial countries is gradually righting itself. A mild upturn is anticipated in late 1975 and extending into 1976. US output is now expected to fall by about 4% in 1975, while Canadian and West European activity declines slightly. Japanese GNP, which had been growing at a 10% rate or better, declined in 1974 and is expected to grow little if at all in 1975.

2. Because inflation has eased and political pressures arising from unemployment are mounting, we expect many OECD nations to institute stimulative economic policies during the second half of 1975 or by early 1976 at the latest. Barring major financial upsets, the largest OECD economies – the United States and Japan – should be recovering by late this year. The major West European countries are expected to lag somewhat; by mid-1976 they should be picking up steam.

3. The recovery will be slower than in other postwar recessions. OECD growth in 1976 probably will be only about 4-1/2%, below long-run growth rates. West European GNP growth will likely be less than 4%, while the Japanese economy should grow at about 5%. Stimulative policies should boost consumer demand; investment demand and exports will remain sluggish. Because the gap between output and productive capacity is extremely wide in many instances, fixed investment by manufacturing industries and utilities will be particularly slow to respond. In addition, the need and/or desire of some nations – particularly Italy, France, and the United Kingdom – to improve their trade balances will cause their policymakers to withhold major stimulative measures until the recovery is firmly established in the United States and Japan and perhaps in West Germany. The economies and import capacities of the smaller developed countries and the non-OPEC LDCs will remain depressed at least until demand for their exports is increased by the recovery in the major countries.

4. OECD economic growth almost certainly will accelerate in 1977. The smaller industrial countries should be recovering by then, and the lagging sectors



in the major OECD countries -- fixed investment and export demand -- should be turning up. OECD growth could rise to nearly 6% in 1977, somewhat above the long-term rate. Growth should average about 5% in Western Europe and reach 7.5% in Japan. US GNP growth is assumed to be about 6%. Beyond 1977, growth in the OECD countries is expected to continue, although at a slower pace. Table 1 shows the assumptions for GNP growth in each of the major regions in 1975-80.

### *Demand for Energy*

5. Beginning in late 1975 and early 1976, economic recovery will cause a rise in the demand for energy in major developed countries, although the rise will be slower than the increase in economic activity. Prior to 1973, energy consumption in the major industrial countries grew slightly faster than the rate of GNP growth. In 1970-73, OECD economic output grew at an average annual rate of 4.6%, while energy consumption grew by 4.7%. In the absence of the sharp increase in energy prices induced by the OPEC oil price hike, energy consumption would probably have continued growing at a rate slightly faster than GNP.

6. Higher energy prices and non-price conservation measures appear to have caused a divergence between economic growth and energy demand growth in 1974; we expect that this divergence will gradually widen because higher prices have made energy efficiency an even more important long-term criterion for both investors and consumers. We derived our estimates of total energy demand from an equation that relates demand to GNP. Because energy demand historically has been more stable than GNP, the equation we used related energy demand with a four-year moving average of GNP. The equation was applied to each of the major energy-consuming areas -- the United States, Western Europe, Japan, and Canada. The results were adjusted by an amount equivalent to the expected price-induced savings in energy use in the various energy-consuming sectors of each geographic region. Table 2 shows our adjusted estimates of energy demand for the United States, Western Europe, Japan, and Canada.<sup>1</sup>

7. Total demand for energy in the United States, Western Europe, Japan, and Canada is expected to reach roughly 86 million b/d of oil equivalent. This estimate is sensitive to the average growth assumed for the various OECD countries. For example, if OECD growth in each of the five years being projected were one percentage point higher than our assumptions, energy consumption in 1980 would

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1. For further details on the procedure for forecasting demand, see Appendix A.

approximate 90 million b/d. However, the demand for energy is not very sensitive to changes in the pattern of economic growth over the five-year period 1976-80.

8. These estimates of energy demand are substantially lower than projections made prior to the Arab oil embargo. In 1973 the OECD Secretariat estimated that total primary energy consumption in industrial countries would grow 4.8% annually in 1973-80, reaching about 102 million b/d of oil equivalent. In this memorandum, we estimate consumption will increase only 2.3% annually during the same period, thus obtaining a 1980 figure 16 million b/d below the earlier OECD forecast. About 10 million b/d of this reduction is due to lower average rates of economic growth and 6 million b/d to savings induced by higher energy prices.

### *Domestic Energy Supplies*

9. Domestic energy supplies and non-oil imports in the United States, Western Europe, Japan, and Canada are projected to increase at a 5% average rate between 1975 and 1980, from 48.1 million b/d in 1975 to 61.5 million b/d in 1980 (see Table 3).

10. The domestic energy supply (including net non-oil imports) in the *United States* is expected to increase from 30 million b/d of oil equivalent in 1975 to 35.1 million b/d in 1980. The increase is largely attributable to the availability of Alaskan oil and to stepped-up exploitation of other resources. Production of natural gas is expected to fall throughout this period. Our 1980 production figure is from an unpublished FPC estimate that assumes gradual decontrol of gas prices. It is consistent with a fairly sharp rise in the discovery of new reserves during 1975-80. Because production continues to exceed reserve additions, however, gas production declines at a decreasing rate through 1980. With US energy demand at 42.5 million b/d, oil import requirements in 1980 are projected at 7.4 million b/d.

11. The domestic energy supply in *Western Europe* (including imported coal and natural gas) is projected to increase from 11.8 million b/d of oil equivalent in 1975 to 18.6 million b/d in 1980. Expansion of North Sea oil and gas development, although less than had been anticipated earlier, will help boost the share of these fuels in total supply (excluding imported oil) from 35% in 1975 to 45% in 1980. West European energy demand of 29.3 million b/d and domestic supplies of 18.6 million b/d imply an oil import requirement of 10.7 million b/d in 1980.

Table 1

## Major Developed Countries: Projected Economic Growth Rates

		Percent					
	1975-80 Average Annual	1975	1976	1977	1978	1979	1980
United States	3.1	-4	5	6	5	4	3
Japan	5.1	0.5	5.0	7.5	7	5.5	5
Western Europe	3.0	-1	3.8	4.5	4	3	4
Canada	4.0	-1	3.5	6	6	5.5	4

Table 2

## Major Developed Countries: Projected Energy Demand

	Million b/d of Oil Equivalent					
	1975	1976	1977	1978	1979	1980
Total	73.5	75.0	76.7	78.9	82.7	86.3
United States	36.5	37.0	37.6	38.7	40.7	42.5
Western Europe	25.5	26.1	26.7	27.3	28.3	29.3
Japan	7.3	7.5	7.7	8.0	8.4	8.9
Canada	4.2	4.4	4.7	4.9	5.3	5.6

Table 3

Major Developed Countries: Projected Domestic Energy Production  
and Net Non-Oil Imports

	Million b/d of Oil Equivalent					
	1975	1976	1977	1978	1979	1980
Total	48.1	49.8	52.1	55.5	57.9	61.5
United States	30.0	30.4	30.9	32.6	33.5	35.1
Western Europe	11.8	12.8	14.3	15.7	17.0	18.6
Japan	2.3	2.5	2.8	3.1	3.4	3.5
Canada	4.0	4.1	4.1	4.1	4.0	4.3

12. Energy production from domestic sources in *Japan* and net non-oil imports will grow from about 2.3 million b/d of oil equivalent to 3.4 million b/d during 1975-80. Coal will retain its position as the principal domestic energy resource, while coal imports will increase 55% during this period. Nuclear and hydroelectric power will also make a substantial contribution to rising non-oil energy consumption in Japan. Japan's oil import needs in 1980 should be about 5.4 million b/d.

13. The domestic supply picture in *Canada* will show little improvement by 1980. Total production and net non-oil imports are projected to rise only 7.5%, from 4 million b/d of oil equivalent in 1975 to 4.3 million b/d in 1980. Moreover, practically all of this increase is expected to occur in 1980. Canadian energy demand in 1980 of 5.6 million b/d coupled with estimated supply of 4.3 million b/d implies an oil import requirement of 1.3 million b/d.

14. Increased oil production in the major developed countries between 1975 and 1980 will contribute 36% of the rise in OECD energy production. The increase from 12.6 million b/d to 17.4 million b/d is primarily the result of new production from the North Sea and Alaska. Increased coal supplies will contribute about 30%, rising from 13.5 million b/d of oil equivalent to 17.5 million b/d. Nuclear energy, which will rise from 1.7 million b/d in 1975 to 4.5 million b/d in 1980, will provide 21% of the total rise in supplies. Natural gas and hydroelectric power together will account for 13% of the growth, adding 1 million b/d and 0.8 million b/d, respectively (see Table 4 and Appendix B).

Table 4

## Major Developed Countries: Projected Energy Supply, by Type

	Million b/d of Oil Equivalent					
	1975	1976	1977	1978	1979	1980
Total	48.1	49.8	52.1	55.5	57.9	61.5
Oil <sup>1</sup>	12.6	12.9	13.2	15.1	16.0	17.4
Natural gas	14.9	15.1	15.4	15.5	15.5	15.9
Coal	13.5	14.2	15.1	15.8	16.5	17.5
Hydroelectric <sup>2</sup>	5.4	5.5	5.8	5.9	6.2	6.2
Nuclear <sup>2</sup>	1.7	2.1	2.6	3.2	3.7	4.5

1. Including natural gas liquids.

2. Primary energy equivalent.

15. Higher energy prices and national policies promoting domestic energy production have had a substantial impact on developed country energy supplies, probably adding about 5 million b/d of oil equivalent to projected 1980 energy output. Much of the anticipated rise in coal supplies is directly attributable to higher oil prices. US coal output is now expected to rise much more rapidly than was anticipated before the embargo, while the postwar decline in West European and Japanese coal production and consumption is expected to be reversed as a result of higher oil prices.

16. Higher prices have had a much less demonstrable effect on projections of oil and gas production, although they have undoubtedly slowed the decline in US production and have clearly contributed to a more rapid exploitation of West European natural gas reserves. Nuclear and hydroelectric power projections for 1980 show few if any price effects because these energy sources typically require lengthy planning and construction periods; the major impact of price changes will show up after 1980.

#### *Supply Position of Other Free World Countries*

17. As a group, other developed countries (such as Australia and New Zealand) and the non-OPEC LDCs together will still be importing oil in 1980. Their oil consumption as well as production will increase substantially – 37% for consumption and 117% for production between 1973 and 1980. We estimate that in 1980, this group of nations will be consuming about 9.2 million b/d and producing 7.6 million b/d.<sup>2</sup>

18. The projected oil deficit of the *non-OPEC LDCs* is about 1.1 million b/d in 1980, down sharply from almost 3 million b/d in 1973. Individual LDCs will become large net exporters and could elect to become members of the cartel. Total oil exports by non-OPEC LDCs are expected to reach 3.7 million b/d by 1980. Bolivia, Mexico, Angola, Malaysia-Brunei, Trinidad and Tobago, Congo, and Zaire are expected to export more than 2.4 million b/d, while Arab countries not presently members of OPEC – Bahrain, Egypt, Oman, Syria, and Tunisia – will export 1.2 million b/d. Oil-importing LDCs are expected to increase their imports to about 4.8 million b/d, up from about 3.5 million in 1973.

19. Throughout the remainder of this decade, crude oil production in *Australia and New Zealand* will probably remain stable at about 400,000 b/d.

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2. For further details, see Appendix C.

Consumption is projected to increase at an annual rate of 4.6%, growing from 675,000 b/d in 1973 to 925,000 b/d in 1980. Oil import requirements thus should rise about the same as consumption, reaching roughly 500,000 b/d in 1980.

### *Free World Demand for Imported Oil*

20. Energy demand of the major developed countries of 86.3 million b/d of oil equivalent coupled with domestic supplies (counting non-oil imports) of 61.5 million b/d imply an oil import requirement of 24.8 million b/d in 1980. Adding the net import demand of the other Free World countries (1.6 million b/d) gives a total Free World demand for imported oil in 1980 of 26.4 million b/d (see Table 5). Demand reaches a low in 1978, when new oil from Alaska temporarily depresses US import demand, which subsequently begins rising again. The major shifts in imports are a gradual decline in West European and other Free World imports as North Sea oil and increased oil production by non-OPEC LDCs are substituted. These reductions are partly offset by gradual increases in Canadian and Japanese oil imports.

Table 5

#### Free World: Projected Oil Import Demand

	Million b/d					
	1975 <sup>1</sup>	1976	1977	1978	1979	1980
Total	26.9	27.6	27.0	25.5	26.7	26.4
United States	6.2	6.6	6.8	6.1	7.2	7.4
Western Europe	13.0	13.3	12.4	11.6	11.3	10.7
Japan	4.9	4.9	4.9	4.9	5.0	5.4
Canada	0.1	0.3	0.6	0.8	1.3	1.3
Other <sup>2</sup>	2.7	2.5	2.3	2.1	1.9	1.6

1. Data have been adjusted to account for large stock drawdowns during the first half of the year and do not agree with those which could be obtained by subtracting domestic supply data (Table 3) from total energy demand data (Table 2).

2. . Mainly net import demand by non-OPEC LDCs, and other developed countries.

21. We estimate that the combination of higher oil prices, slower economic growth, and larger domestic supplies will reduce the demand for imported oil in 1980 by about 20 million b/d. Several pre-embargo studies, including the 1973 OECD energy study, estimated that the major developed areas alone would have imported at least 40 million b/d in 1980, or some 14 million b/d more than our projection. We estimate that the other Free World countries probably would have

had net imports of an additional 5 million b/d or so if economic growth had continued at historic rates and oil prices had remained low.

### *Free World Imports of Communist Oil*

22. Net imports of Communist oil by Free World countries are expected to rise from 1.0 million b/d in 1975 to 1.3 million b/d in 1980. In making the calculations, actual and projected Communist exports to the Free World have been reduced by Communist imports – primarily Soviet and East European imports from OPEC nations – to obtain net Communist exports. Communist countries could provide about 5% of estimated Free World import requirements in 1980.

23. The largest contribution, 77% of the total, is expected to come from the People's Republic of China in 1980. Chinese exports of crude to Japan are projected to increase from about 155,000 b/d in 1975 to as much as 1 million b/d in 1980. We expect that China will export only small quantities of crude and products to other countries.<sup>3</sup>

24. Net oil exports from the Soviet Union and Eastern Europe will be approximately 300,000 b/d in 1980, a substantial drop from the 700,000 to 800,000 b/d net exports expected in 1975-77.<sup>4</sup>

### *Free World Demand for OPEC Oil*

25. Free World imports of OPEC oil are expected to stabilize in the neighborhood of 27 million b/d in 1976-80 as a result of expected trends in Free World import requirements and net Communist exports (see Table 6). Our estimates of the demand for OPEC oil are not radically different than those of other observers (see Table 7). Most of the other forecasters appear to be assuming higher rates of economic growth in consuming countries, and this appears to have accounted for most of the differences in the estimates. The Free World bill for OPEC oil will continue to rise, however, as a result of anticipated further increases in the nominal – but not the real – price of crude.

3. For details on supplies from China, see Appendix D.

4. For details on supplies from the USSR and Eastern Europe, see Appendix E.

Table 6

## Free World: Projected Demand for OPEC Oil

	Million b/d							
	1973	1974	1975	1976	1977	1978	1979	1980
Free World imports	29.1	28.4	26.9	27.6	27.0	25.5	26.7	26.4
Net Communist trade	-0.5	-0.8	-1.0	-1.1	-1.2	-1.2	-1.1	-1.3
USSR-Eastern Europe	-0.5	-0.7	-0.8	-0.7	-0.7	-0.5	-0.3	-0.3
China	....	-0.1	-0.2	-0.4	-0.5	-0.7	-0.8	-1.0
Bunker use <sup>1</sup>	1.2	1.2	1.1	1.2	1.2	1.2	1.2	1.2
Floating stock change <sup>2</sup>	0.3	0.7	-0.7	0.1	0.1	0.1	0.1	0.1
Free World demand for OPEC oil	30.1	29.5	26.3	27.8	27.1	25.6	26.9	26.4

1. Bunker fuel sold by oil exporting countries that does not appear in import statistics. Most of this fuel is used by tankers transporting crude oil to the major consuming areas.

2. Accounts for changes in the volume of oil at sea.

Table 7

## Alternative Estimates of the Demand for OPEC Oil

	Million b/d					
	1975	1976	1977	1978	1979	1980
CIA	26.3	27.8	27.1	25.6	26.9	26.4
Walter Levy	26.5	30.0	31.5	32.5	32.5	31.5
Morgan Guaranty	....	....	....	....	....	29.6
Irving Trust	28.6	27.3	24.7	24.7	24.7	24.7
Citibank	26.0	27.0	28.0	29.0	30.0	31.0

## OPEC Balance of Payments

*Oil Exports*

26. We expect OPEC oil earnings, in nominal dollars, to increase from \$107 billion in 1975 to \$155 billion in 1980. This scenario assumes an oil price increase of \$1.50 per barrel on 1 October 1975 and constant real prices thereafter. Inflation rates for the Free World – and for OPEC oil – are projected at 9% in 1976, 6% in 1977, and 5% annually in the remaining years. As explained above, we expect the physical volume of OPEC oil exports to be fairly stable in 1976-80 (see Table 8). The projected increase in earnings is thus the result of higher nominal



Table 8

## OPEC Countries: Oil Exports

	<i>Thousand b/d</i>						
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
ALGERIA	902	918	950	945	940	935	930
ECUADOR	111	117	153	156	145	141	134
INDONESIA	1200	1121	1384	1480	1570	1740	1910
IRAQ	5753	5137	5420	5400	5200	5300	5300
IRAQ	1732	2167	2360	2540	2450	2600	2650
KUWAIT	2530	2096	1970	1900	1850	1800	1800
LIBYA	1480	1527	1955	1950	1945	1990	2035
NIGERIA	2197	1691	1930	1950	1800	2100	2300
QATAR	514	405	445	440	435	430	425
SAUDI ARABIA	8401	7079	7358	6774	5820	6389	5506
U.A.E.	1678	1742	1785	1700	1600	1650	1605
VENEZUELA	2740	2150	1890	1665	1645	1625	1605
OPEC	29238	26150	27600	26900	25400	26700	26200

prices. In real terms, the combined oil earnings of OPEC in 1980, while tremendous, will be only about 10% greater than in 1975.

27. Although total demand for OPEC oil will remain about constant, it will be necessary for some OPEC countries to cut production in order to offset production increases in other countries. Increases in oil production and exports can be expected in Indonesia, Iraq, Libya, and Nigeria for a total gain between 1975 and 1980 of 2.4 million b/d in these countries. The compensating cuts will occur primarily in Venezuela and Saudi Arabia. The Venezuelan cuts - about 400,000 b/d will be taken for conservation reasons. The Saudi cut - about 1.5 million b/d - would be designed to bring OPEC oil supply in line with demand, and thereby to support the cartel. Saudi Arabia would still be producing nearly 6 million b/d by 1980, less than one-half of capacity but enough to generate a large surplus, as discussed below. This is, of course, only one of many possible scenarios for the distribution of OPEC exports among producing countries.

### *Non-Oil Exports*

28. OPEC non-oil export earnings will be increasingly important in the next five years. We estimate an increase from \$6 billion in 1975 to \$19 billion in 1980 (see Table 9). This would result in a near doubling of the present 6% share of total exports. Four producers will account for three-fourths of the increase:

Table 9

## OPEC Countries: Non-Oil Exports (f.o.b.)

	Billion US \$						
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
ALGERIA	0.6	0.7	0.7	1.7	2.1	2.7	3.3
ECUADOR	0.6	0.5	0.5	0.5	0.5	0.6	0.6
INDONESIA	2.2	1.8	2.4	2.8	3.6	4.3	5.0
IRAN	0.7	0.7	1.2	1.6	2.0	2.5	3.1
IRAQ	0.1	0.2	0.3	0.4	0.5	0.6	0.9
KUWAIT	0.3	0.4	0.6	0.6	0.8	0.9	1.2
LIBYA	0.1	0.1	0.1	0.1	0.1	0.2	0.2
NIGERIA	0.7	0.9	1.0	1.1	1.3	1.4	1.6
QATAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAUDI ARABIA	0.0	0.0	0.0	0.0	0.0	0.1	0.2
U.A.E.	0.5	0.6	0.8	0.9	1.1	1.4	1.6
VENEZUELA	0.4	0.5	0.5	0.7	1.0	1.3	1.5
OPEC	6.2	6.4	8.1	10.4	13.0	16.0	19.2

*Algeria* and *Iran* will increase their non-oil exports \$2.6 billion and \$2.4 billion, respectively, by 1980. LNG shipments beginning in 1976-77 will account for most of the growth.

*Indonesia* and *Venezuela* will increase non-oil exports \$3.2 billion and \$1.0 billion, respectively, by 1980. In addition to the expected increases in traditional exports of agricultural products and raw materials, industrial products will play an increasing role later in the decade as current development projects begin to come on line.

### Imports

29. OPEC imports will continue growing throughout the decade, although not at the dizzying pace of 1974 and 1975. We expect imports to rise from \$54 billion in 1975 to almost \$133 billion by 1980 (see Table 10). Price increases -- the same as those assumed for oil -- will account for about half the growth in the import bill.

30. We expect annual import volume growth to drop from 35% in 1975 to an average annual rate of about 13% a year. While overall OPEC import volume will grow at a relatively constant rate in 1976-80, growth in individual countries will vary greatly because of substantial differences in export earnings, development potential, and the availability of skills to carry out development plans (see Table 11). In estimating imports, we believe it useful to break the OPEC countries into three categories:

Table 10

## OPEC Countries: Imports (f.o.b.)

	Billion US \$						
	1974	1975	1976	1977	1978	1979	1980
ALGERIA	-3.7	-6.0	-6.2	-6.8	-7.4	-8.0	-8.5
ECUADOR	-0.8	-1.1	-1.3	-1.4	-1.5	-1.5	-1.6
INDONESIA	-3.9	-4.7	-5.8	-7.1	-8.5	-10.3	-12.3
IRAN	-7.2	-10.8	-13.5	-16.6	-20.3	-24.5	-29.6
IRAQ	-2.6	-4.8	-6.1	-7.4	-8.9	-11.0	-13.7
KUWAIT	-1.8	-2.5	-2.9	-3.5	-4.3	-5.1	-6.2
LIBYA	-3.1	-4.8	-6.2	-7.8	-9.2	-10.8	-11.7
NIGERIA	-2.7	-5.3	-6.2	-7.7	-9.5	-11.0	-12.3
QATAR	-0.3	-0.5	-0.5	-0.7	-0.8	-0.9	-0.9
SAUDI ARABIA	-3.6	-5.0	-7.1	-9.4	-11.4	-14.0	-17.0
U.A.E.	-1.4	-2.2	-3.0	-4.0	-5.0	-6.0	-7.0
VENEZUELA	-4.7	-6.3	-7.9	-9.2	-10.1	-11.0	-11.9
OPEC	-35.8	-54.0	-66.7	-81.6	-97.0	-114.1	-132.8

*Algeria, Ecuador, and Venezuela.*

These producers will together be able to sustain an average annual import volume growth rate of only 4%. Balance-of-payments problems throughout almost the entire period are the major constraint.

*Indonesia, Kuwait, Libya, Nigeria, and Qatar.* These countries will maintain an import growth rate of about 13%. Kuwait and Qatar have limited development potential, while Libya and Nigeria will face payments difficulties after 1977. Indonesian imports are already constrained by payments factors.

*Iran, Iraq, Saudi Arabia, and the*

*United Arab Emirates.* We expect the import volume of these cartel members to increase at an average annual rate of 17%. They will be less affected by financial constraints.

Table 11

OPEC Countries: Import Volume  
1976-80

	Average Annual Rate of Growth (Percent)
Algeria	1
Ecuador	2
Indonesia	14
Iran	16
Iraq	16
Kuwait	13
Libya	13
Nigeria	11
Qatar	7
Saudi Arabia	21
United Arab Emirates	19
Venezuela	7

*Services and Private Transfers*

31. We expect that the OPEC net deficit for services and private transfers will drop from about \$8 billion in 1975 to \$5 billion in 1978 and will rise to \$8 billion again in 1980 (see Table 12). During the next three years, the \$14 billion projected rise in investment income receipts (see Table 13) will more than offset the \$5 billion increase in freight and insurance and the additional \$6 billion in other service payments. This trend will probably be reversed in 1979 as the buildup in producer assets, and thus in investment income, begins to slow.

Table 12

*OPEC Countries: Net Services Plus Private Transfers*

Billion US \$

	1974	1975	1976	1977	1978	1979	1980
ALGERIA	0.0	0.1	0.3	0.3	0.4	0.4	0.5
ECUADOR	0.3	0.2	0.1	0.1	0.1	0.1	0.1
INDONESIA	0.5	0.7	0.9	1.0	1.1	1.2	1.3
IRAN	0.9	1.2	1.7	2.0	2.4	2.9	3.5
IRAQ	0.0	0.1	0.2	0.2	0.2	0.3	0.3
KUWAIT	0.1	0.1	0.1	0.1	0.1	0.1	0.2
LIBYA	0.8	0.8	1.0	1.0	1.2	1.4	1.7
NIGERIA	0.8	1.0	1.2	1.4	1.7	2.0	2.4
QATAR	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAUDI ARABIA	1.1	1.5	2.1	2.7	3.2	3.9	4.7
U.A.E.	0.1	0.1	0.2	0.2	0.2	0.3	0.3
VENEZUELA	0.3	0.4	0.4	0.5	0.6	0.7	0.9
OPEC	4.9	6.2	8.2	9.5	11.3	13.3	15.9

Table 13

*Investment Income Receipts<sup>1</sup>*

Billion US \$

	1974	1975	1976	1977	1978	1979	1980
ALGERIA	0.1	0.0	-0.1	-0.2	-0.3	-0.5	-0.6
ECUADOR	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2
INDONESIA	0.1	0.1	0.1	0.2	0.3	0.4	0.4
IRAN	0.4	1.1	1.8	2.7	3.4	3.9	4.1
IRAQ	0.2	0.4	0.7	1.2	1.6	1.9	2.2
KUWAIT	0.9	1.3	1.9	2.5	3.1	3.8	4.4
LIBYA	0.2	0.3	0.4	0.5	0.6	0.5	0.3
NIGERIA	0.3	0.5	0.7	0.9	0.9	0.9	0.9
QATAR	0.1	0.2	0.3	0.4	0.6	0.7	0.9
SAUDI ARABIA	1.0	2.4	4.2	6.3	8.2	9.9	11.6
U.A.E.	0.3	0.7	1.2	1.7	2.2	2.6	3.1
VENEZUELA	0.3	0.6	0.6	0.6	0.5	0.3	0.1
OPEC	3.9	7.7	11.8	16.7	20.8	24.2	27.2

1. Including interest payments on loans received by OPEC countries to finance balance-of-payments deficits.

32. Estimates of individual services accounts were obtained as follows:

*Freight and Insurance* – The cost of moving goods from the ports of foreign suppliers to various OPEC countries normally ranges from 10% to 15% of the f.o.b. price. We assume that the freight and insurance costs equal 12% of the f.o.b. value of imports to each country.

*Investment Income* – We assume that annual earnings on foreign investments equal 8% of the acquisition value of assets.

*Profit Repatriation* – These outflows include repatriation of profits by foreign oil concessionaires and service payments to companies operating government-owned fields. The profits repatriations in each time period fully offset profits accrued on oil export sales, which were included as a part of this value of oil export in the trade account.

*Other Services* – This category includes a wide range of payments and receipts, including fees paid for foreign technology and services, interest payment on past OPEC debt, projected borrowings, and private remittances by foreign workers. Most of the increase in this category will occur in Iran, Nigeria, and Saudi Arabia, where substantial growth in the foreign work force is expected.

#### *Aid*

33. We expect grant assistance to drop from \$2.6 billion in 1975 to \$1.5 billion in 1980 (see Table 14). This decline will occur as (a) large transfers by major Arab producers to front line Middle East countries taper off, (b) greater use is made of concessionary loans to developing nations, and (c) OPEC states faced with financial constraints cut back their aid programs.

#### *Current Account Balance*

34. The estimates in Table 15 indicate an OPEC current account surplus averaging nearly \$49 billion a year from 1975 to 1980. The surplus will peak in 1976-77 – with the recovery in world economic activity and high oil earnings – and then decline as oil production levels off and imports continue to rise. We estimate the cumulative OPEC current account surplus in the six years 1975-80 at \$295 billion. If producers continue channeling the same proportion of their

Table 14

## OPEC Countries: Grants

Billion US \$

	1974	1975	1976	1977	1978	1979	1980
ALGERIA	-0.1	0.0	0.0	0.0	0.0	0.0	0.0
ECUADOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INDONESIA	0.1	0.1	0.1	0.1	0.1	0.1	0.1
IRAN	0.0	0.0	-0.3	-0.2	-0.2	-0.2	-0.2
IRAQ	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
KUWAIT	-0.6	-0.5	-0.3	-0.3	-0.3	-0.3	-0.3
LIBYA	-0.2	0.0	-0.2	-0.1	-0.1	-0.1	-0.1
NIGERIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
QATAR	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1
SAUDI ARABIA	-1.4	-1.1	-1.2	-1.0	-0.8	-0.6	-0.5
U.A.E.	-0.4	-0.5	-0.3	-0.2	-0.2	-0.2	-0.2
VENEZUELA	-0.1	-0.2	-0.2	-0.2	0.0	0.0	0.0
OPEC	-3.0	-2.6	-2.7	-2.2	-1.8	-1.6	-1.5

Table 15

## OPEC Countries: Current Account Balance

Billion US \$

	1974	1975	1976	1977	1978	1979	1980
EXPORTS (F.O.B.)	120.2	113.3	142.1	148.5	149.8	166.7	174.4
OIL	114.0	106.9	134.0	138.1	136.8	150.7	155.2
NON-OIL	6.2	6.4	8.1	10.4	13.0	16.0	19.2
IMPORTS <sup>1</sup> (F.O.B.)	-35.8	-54.0	-66.7	-81.6	-97.0	-114.1	-132.8
TRADE BALANCE	84.4	59.3	75.3	67.0	52.9	52.6	41.6
NET SER. + PVT. TRANS.	-8.4	-7.9	-7.7	-5.8	-5.3	-6.3	-8.2
FREIGHT AND INSURANCE	-4.3	-6.5	-8.0	-9.8	-11.6	-13.7	-15.9
INVESTMENT INCOME REC'TS <sup>2</sup>	3.9	7.7	12.1	17.2	21.4	24.9	28.2
OTHER	-8.0	-9.2	-11.7	-13.2	-15.1	-17.6	-20.4
GRANTS	-3.0	-2.6	-2.7	-2.2	-1.8	-1.6	-1.5
CURRENT ACCOUNT BALANCE	73.0	48.8	65.0	59.0	45.8	44.7	31.9

1. Including military.

2. Excluding interest payments on loans received by OPEC countries to finance balance-of-payments deficits.

surplus into foreign investments as in the past two years, their foreign official assets will grow from \$74 billion at yearend 1974 to \$350 billion at yearend 1980.

35. OPEC's current account surplus and stock of foreign assets will become more unevenly distributed each year. By 1980, only five OPEC states – Saudi Arabia, Kuwait, the United Arab Emirates, Iraq, and Qatar – will still have notable annual surpluses (see Table 16). The Saudis' current account balance alone will

Table 16

*OPEC Countries: Current Account Balance, by Country*

	<i>Billion US \$</i>						
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
ALGERIA	0.9	-2.0	-1.7	-1.3	-1.5	-1.6	-1.5
ECUADOR	-0.1	-0.4	-0.3	-0.4	-0.6	-0.5	-0.7
INDONESIA	1.7	0.1	1.1	1.0	0.9	0.9	0.7
IRAN	13.4	8.8	11.6	10.6	7.4	5.1	1.1
IRAQ	3.6	3.6	5.1	5.7	4.6	4.2	2.6
KUWAIT	7.2	6.3	7.9	8.1	8.2	8.2	8.3
LIBYA	2.6	0.7	2.0	1.0	-0.3	-1.6	-2.2
NIGERIA	6.1	1.6	3.0	2.0	-0.4	-0.1	0.0
QATAR	1.6	1.1	1.7	1.8	1.8	2.0	2.2
SAUDI ARABIA	25.2	21.8	27.3	25.6	21.5	24.6	19.1
U.A.E.	5.8	5.3	6.7	6.4	5.8	6.1	5.7
VENEZUELA	5.0	1.8	0.6	-1.4	-1.8	-2.5	-3.3
OPEC	73.0	48.8	65.0	59.0	45.8	44.7	31.9

be almost 50% greater than the balance of all other producers while their official foreign assets will exceed \$145 billion. Despite a projected decline in the volume of Saudi oil exports – just over 20% between 1975 and 1980 – and rapidly rising imports, Riyadh will continue to run a substantial trade surplus. By 1980, annual earnings on Saudi foreign assets will reach almost \$12 billion – or 70% of the expected value of Saudi imports.

36. Iran will be in a strong financial position at the end of 1980, although its current account balance will be greatly diminished by that time. Iran's foreign assets will total nearly \$50 billion.

37. Libya and Nigeria will both begin running current account deficits by 1978. At the end of the decade, Libya's cumulative surplus probably will have vanished, while Nigeria's position will show some improvement. Indonesia will manage to maintain a slight current account surplus throughout the period.

38. The three remaining cartel members – Algeria, Ecuador, and Venezuela – will face strong balance-of-payments pressures. In 1975 their combined deficit will total \$600 million; by 1980 it will rise to more than \$5 billion. We believe this to be a minimum projection. The estimate for import growth in these countries was constrained by both export earning potential and borrowing ability, thus limiting the deterioration in their current account position. Because we assumed that these countries will be producing at full capacity (except in Venezuela, when output is limited by government policy), additional oil earnings are unlikely. To

the extent these producers can obtain additional financing – either through greater borrowing on international capital markets or intra-OPEC loans – both import growth and deficit levels could be somewhat larger. However, substantial loans on a continuing basis from richer cartel members appear unlikely.

39. Projected current account balances for individual OPEC countries are presented in Table 17.



Table 17

## OPEC Countries: Current Account Balances

Billion US \$

	1974	1975	1976	1977	1978	1979	1980
<b>ALGERIA</b>							
EXPORTS (F.O.B.)	5.1	4.9	5.7	6.9	7.5	8.3	9.2
OIL	4.5	4.2	5.0	5.2	5.4	5.6	5.8
NON-OIL	0.6	0.7	0.7	1.7	2.1	2.7	3.3
IMPORTS* (F.O.B.)	-3.7	-6.0	-6.2	-6.8	-7.4	-8.0	-8.5
TRADE BALANCE	1.4	-1.1	-0.5	0.1	0.1	0.3	0.7
NET SER. + PVT. TRANS.	-0.4	-0.8	-1.2	-1.4	-1.6	-1.9	-2.2
FREIGHT AND INSURANCE	-0.4	-0.7	-0.7	-0.8	-0.9	-1.0	-1.0
INVESTMENT INCOME REC'TS	0.1	0.0	0.1	0.1	0.1	0.2	0.2
OTHER	0.0	-0.1	-0.6	-0.7	-0.9	-1.1	-1.3
GRANTS	-0.1	0.0	0.0	0.0	0.0	0.0	0.0
CURRENT ACCOUNT BALANCE	0.9	-2.0	-1.7	-1.3	-1.5	-1.6	-1.5
<b>ECUADOR</b>							
EXPORTS (F.O.B.)	1.1	1.0	1.3	1.3	1.3	1.4	1.4
OIL	0.5	0.5	0.8	0.8	0.8	0.8	0.8
NON-OIL	0.6	0.5	0.5	0.5	0.5	0.6	0.6
IMPORTS* (F.O.B.)	-0.8	-1.1	-1.3	-1.4	-1.5	-1.5	-1.6
TRADE BALANCE	0.3	-0.1	0.0	-0.1	-0.2	-0.1	-0.2
NET SER. + PVT. TRANS.	-0.4	-0.3	-0.3	-0.3	-0.4	-0.4	-0.5
FREIGHT AND INSURANCE	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2
INVESTMENT INCOME REC'TS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER	-0.3	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3
GRANTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CURRENT ACCOUNT BALANCE	-0.1	-0.4	-0.3	-0.4	-0.6	-0.5	-0.7
<b>INDONESIA</b>							
EXPORTS (F.O.B.)	7.4	7.1	9.8	11.1	12.8	15.0	17.2
OIL	5.2	5.3	7.4	8.3	9.2	10.7	12.2
NON-OIL	2.2	1.8	2.4	2.8	3.6	4.3	5.0
IMPORTS* (F.O.B.)	-3.9	-4.7	-5.8	-7.1	-8.5	-10.3	-12.3
TRADE BALANCE	3.5	2.4	4.0	4.0	4.3	4.7	4.9
NET SER. + PVT. TRANS.	-2.0	-2.3	-2.9	-3.2	-3.5	-3.9	-4.3
FREIGHT AND INSURANCE	-0.5	-0.6	-0.7	-0.8	-1.0	-1.2	-1.5
INVESTMENT INCOME REC'TS	0.1	0.1	0.1	0.2	0.3	0.4	0.4
OTHER	-1.6	-1.9	-2.4	-2.6	-2.7	-3.0	-3.3
GRANTS	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CURRENT ACCOUNT BALANCE	1.7	0.1	1.1	1.0	0.9	0.9	0.7
<b>IRAN</b>							
EXPORTS (F.O.B.)	22.0	21.1	27.0	28.8	29.5	31.9	33.9
OIL	21.3	20.4	25.8	27.2	27.5	29.4	30.8
NON-OIL	0.7	0.7	1.2	1.6	2.0	2.5	3.1
IMPORTS* (F.O.B.)	-7.2	-10.8	-13.5	-16.6	-20.3	-24.5	-29.6
TRADE BALANCE	14.8	10.3	13.5	12.2	9.2	7.3	4.3
NET SER. + PVT. TRANS.	-1.4	-1.5	-1.6	-1.4	-1.5	-2.0	-3.0
FREIGHT AND INSURANCE	-0.9	-1.3	-1.6	-2.0	-2.4	-2.9	-3.6
INVESTMENT INCOME REC'TS	0.4	1.1	1.8	2.7	3.4	3.9	4.1
OTHER	-1.0	-1.3	-1.8	-2.1	-2.5	-2.9	-3.5
GRANTS	0.0	0.0	-0.3	-0.2	-0.2	-0.2	-0.2
CURRENT ACCOUNT BALANCE	13.4	8.8	11.6	10.6	7.4	5.1	1.1

\* Including military.

Billion US \$

	1974	1975	1976	1977	1978	1979	1980
IRAQ							
EXPORTS (F.O.B.)	6.7	9.0	11.7	13.4	13.6	15.2	16.5
OIL	6.6	8.8	11.4	13.0	13.1	14.6	15.6
NON-OIL	0.1	0.2	0.3	0.4	0.5	0.6	0.9
IMPORTS* (F.O.B.)	-2.6	-4.8	-6.1	-7.4	-8.9	-11.0	-13.7
TRADE BALANCE	4.1	4.2	5.6	6.0	4.7	4.2	2.8
NET SER. + PVT. TRANS.	-0.2	-0.4	-0.3	-0.1	0.1	0.1	0.0
FREIGHT AND INSURANCE	-0.3	-0.6	-0.7	-0.9	-1.1	-1.3	-1.6
INVESTMENT INCOME REC'TS	0.2	0.4	0.7	1.2	1.6	1.9	2.2
OTHER	-0.1	-0.3	-0.3	-0.4	-0.4	-0.4	-0.5
GRANTS	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
CURRENT ACCOUNT BALANCE	3.6	3.6	5.1	5.7	4.6	4.2	2.6
KUWAIT							
EXPORTS (F.O.B.)	9.2	8.6	9.8	10.0	10.4	10.8	11.5
OIL	8.9	8.2	9.2	9.4	9.6	9.8	10.3
NON-OIL	0.3	0.4	0.6	0.6	0.8	0.9	1.2
IMPORTS* (F.O.B.)	-1.8	-2.5	-2.9	-3.5	-4.3	-5.1	-6.2
TRADE BALANCE	7.4	6.1	7.0	6.5	6.1	5.6	5.3
NET SER. + PVT. TRANS.	0.4	0.8	1.3	1.8	2.4	2.9	3.3
FREIGHT AND INSURANCE	-0.2	-0.3	-0.3	-0.4	-0.5	-0.6	-0.7
INVESTMENT INCOME REC'TS	0.9	1.3	1.9	2.5	3.1	3.8	4.4
OTHER	-0.3	-0.3	-0.2	-0.2	-0.3	-0.3	-0.3
GRANTS	-0.6	-0.5	-0.3	-0.3	-0.3	-0.3	-0.3
CURRENT ACCOUNT BALANCE	7.2	6.3	7.9	8.1	8.2	8.2	8.3
LIBYA							
EXPORTS (F.O.B.)	7.0	6.7	9.9	10.4	10.9	11.7	12.5
OIL	6.9	6.6	9.8	10.3	10.7	11.5	12.3
NON-OIL	0.1	0.1	0.1	0.1	0.1	0.2	0.2
IMPORTS* (F.O.B.)	-3.1	-4.8	-6.2	-7.8	-9.2	-10.8	-11.7
TRADE BALANCE	3.9	1.9	3.7	2.6	1.7	0.9	0.8
NET SER. + PVT. TRANS.	-1.1	-1.2	-1.5	-1.5	-1.9	-2.4	-2.9
FREIGHT AND INSURANCE	-0.4	-0.6	-0.7	-0.9	-1.1	-1.3	-1.4
INVESTMENT INCOME REC'TS	0.2	0.3	0.4	0.5	0.6	0.5	0.3
OTHER	-0.9	-0.9	-1.1	-1.1	-1.3	-1.6	-1.9
GRANTS	-0.2	0.0	-0.2	-0.1	-0.1	-0.1	-0.1
CURRENT ACCOUNT BALANCE	2.6	0.7	2.0	1.0	-0.3	-1.6	-2.2
NIGERIA							
EXPORTS (F.O.B.)	9.8	8.1	10.6	11.4	11.2	13.5	15.5
OIL	9.1	7.2	9.6	10.3	9.9	12.1	13.9
NON-OIL	0.7	0.9	1.0	1.1	1.3	1.4	1.6
IMPORTS* (F.O.B.)	-2.7	-5.3	-6.2	-7.7	-9.5	-11.0	-12.3
TRADE BALANCE	7.1	2.8	4.4	3.7	1.7	2.5	3.2
NET SER. + PVT. TRANS.	-1.1	-1.3	-1.4	-1.6	-2.0	-2.6	-3.2
FREIGHT AND INSURANCE	-0.3	-0.6	-0.7	-0.9	-1.1	-1.3	-1.5
INVESTMENT INCOME REC'TS	0.3	0.5	0.7	0.9	0.9	0.9	0.9
OTHER	-1.0	-1.2	-1.4	-1.6	-1.8	-2.2	-2.6
GRANTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CURRENT ACCOUNT BALANCE	6.1	1.6	3.0	2.0	-0.4	-0.1	0.0

\* Including military.

*Billion US \$*

	1974	1975	1976	1977	1978	1979	1980
<b>QATAR.</b>							
EXPORTS (F.O.B.)	2.0	1.7	2.2	2.3	2.4	2.4	2.5
OIL	2.0	1.7	2.2	2.3	2.4	2.4	2.5
NON-OIL	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IMPORTS* (F.O.B.)	-0.3	-0.5	-0.5	-0.7	-0.8	-0.9	-0.9
TRADE BALANCE	1.7	1.2	1.6	1.6	1.5	1.6	1.6
NET SER. + PVT. TRANS.	0.0	0.1	0.2	0.3	0.4	0.6	0.7
FREIGHT AND INSURANCE	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
INVESTMENT INCOME REC'TS	0.1	0.2	0.3	0.4	0.6	0.7	0.9
OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GRANTS	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1
CURRENT ACCOUNT BALANCE	1.6	1.1	1.7	1.8	1.8	2.0	2.2
 <b>SAUDI ARABIA</b>							
EXPORTS (F.O.B.)	31.4	28.0	34.8	33.9	30.6	35.3	32.0
OIL	31.4	28.0	34.8	33.9	30.6	35.2	31.8
NON-OIL	0.0	0.0	0.0	0.0	0.0	0.1	0.2
IMPORTS* (F.O.B.)	-3.6	-5.0	-7.1	-9.4	-11.4	-14.0	-17.0
TRADE BALANCE	27.8	23.0	27.7	24.5	19.2	21.3	15.0
NET SER. + PVT. TRANS.	-1.1	-0.2	0.7	2.0	3.1	3.8	4.5
FREIGHT AND INSURANCE	-0.4	-0.6	-0.9	-1.1	-1.4	-1.7	-2.0
INVESTMENT INCOME REC'TS	1.0	2.4	4.2	6.3	8.2	9.9	11.6
OTHER	-1.7	-2.0	-2.6	-3.2	-3.7	-4.4	-5.1
GRANTS	-1.4	-1.1	-1.2	-1.0	-0.8	-0.6	-0.5
CURRENT ACCOUNT BALANCE	25.2	21.8	27.3	25.6	21.5	24.6	19.1
 <b>UNITED ARAB EMIRATES</b>							
EXPORTS (F.O.B.)	7.6	7.8	9.6	9.7	9.8	10.8	11.2
OIL	7.1	7.2	8.8	8.8	8.7	9.4	9.6
NON-OIL	0.5	0.6	0.8	0.9	1.1	1.4	1.6
IMPORTS* (F.O.B.)	-1.4	-2.2	-3.0	-4.0	-5.0	-6.0	-7.0
TRADE BALANCE	6.2	5.6	6.6	5.7	4.8	4.8	4.2
NET SER. + PVT. TRANS.	-0.1	0.2	0.5	0.9	1.2	1.5	1.8
FREIGHT AND INSURANCE	-0.2	-0.3	-0.4	-0.5	-0.6	-0.7	-0.8
INVESTMENT INCOME REC'TS	0.3	0.7	1.2	1.7	2.2	2.6	3.1
OTHER	-0.2	-0.2	-0.3	-0.3	-0.4	-0.4	-0.5
GRANTS	-0.4	-0.5	-0.3	-0.2	-0.2	-0.2	-0.2
CURRENT ACCOUNT BALANCE	5.8	5.3	6.7	6.4	5.8	6.1	5.7
 <b>VENEZUELA</b>							
EXPORTS (F.O.B.)	10.8	9.3	9.8	9.3	9.9	10.5	11.0
OIL	10.4	8.8	9.3	8.6	8.9	9.2	9.5
NON-OIL	0.4	0.5	0.5	0.7	1.0	1.3	1.5
IMPORTS* (F.O.B.)	-4.7	-6.3	-7.9	-9.2	-10.1	-11.0	-11.9
TRADE BALANCE	6.1	3.0	1.9	0.1	-0.2	-0.5	-0.9
NET SER. + PVT. TRANS.	-1.0	-1.0	-1.1	-1.3	-1.6	-2.0	-2.5
FREIGHT AND INSURANCE	-0.6	-0.8	-0.9	-1.1	-1.2	-1.3	-1.4
INVESTMENT INCOME REC'TS	0.3	0.6	0.6	0.6	0.5	0.3	0.1
OTHER	-0.8	-0.8	-0.7	-0.8	-0.9	-1.0	-1.2
GRANTS	-0.1	-0.2	-0.2	-0.2	0.0	0.0	0.0
CURRENT ACCOUNT BALANCE	5.0	1.8	0.6	-1.4	-1.8	-2.5	-3.3

\* Including military.

## APPENDIX A

### DETERMINANTS OF ENERGY DEMAND

In the period 1956-73, energy demand in the Free World grew generally in line with real GNP. It responded more sluggishly, however, during booms and recessions, probably because energy consumption relates closely to the stock of energy-consuming producer and consumer durables. This consideration led us to construct smoothed GNP time series for the United States, Western Europe, Japan, and Canada. For each region, the smoothed GNP value (designated SGNP) in each year is a four-year moving average, as follows:  $SGNP = [GNP(-3) + GNP(-2) + GNP(-1) + GNP]/4$ .

Given these series, we postulated that energy demand (designated ED) grew in proportion to smoothed GNP - e.g., that  $[ED/ED(-1)] = X[SGNP/SGNP(-1)]$  and that X had a value close to 1. To test this assumption, we used data for 1956-73 to estimate the proportionality factor X for each of the four major regions. In all cases, X was close to unity, as we expected. Moreover, each equation fits the historical experience very well. All  $R^2$  values are at least 0.99, and the standard errors are respectively 0.33 million b/d of oil equivalent for the United States, 0.45 million b/d for Western Europe, 0.22 million b/d for Japan, and 0.08 million b/d for Canada.

We further tested each equation by predicting energy demands in 1974. We expected that in view of the substantial oil price increases in effect in 1974, our equations would yield predictions higher than actual demands. This the equations did, indicating the price increases and conservation programs caused reductions in energy consumption of 6% in the United States, Western Europe, and Japan and 3% in Canada.

Because of the continuing adjustment to higher energy prices, we anticipate that the energy demand reductions from predicted values will continue to rise through 1980, albeit at a slow rate. Preliminary consumption information for the first half of 1975 indicate that energy demand reductions from predicted values remained at about the 1974 level in the United States and Japan but may have slumped in Western Europe as strict conservation measures were relaxed.

Most of this initial reduction in energy consumption came about as a result of easily applied measures such as adjusting thermostats in space heating and

cooling, reducing driving speeds, and decreasing lighting in homes and factories. Potential savings from such measures were probably largely exhausted in 1974, unless large new price rises, supply interruptions, or new government steps cause renewed public interest in energy savings. Major additional reductions in energy use will require substantial capital investments by industries and consumers in more energy efficient producer and consumer goods.

Because of heavy reliance on imported oil, average relative energy prices increased about 60% in Western Europe and Japan in 1974. These prices rose only about 20%-25% in the United States and Canada, where the potential for energy savings is probably considerably larger. As a result of gradual deregulation of domestic energy prices, however, we anticipate that relative Canadian and US energy prices will continue to rise substantially through 1980, while further substantial rises are unlikely in Western Europe or Japan. Because relative energy prices will be rising throughout the period and the potential for savings is larger – particularly in the area of gasoline consumption – we expect the rise in US and Canadian energy savings to be larger than those in Western Europe. Although the potential for energy savings in Japan is the smallest, we anticipate fairly large reductions in Japan for institutional reasons. For example, Japanese industries are likely to be responsive to direct government pressures for introduction of energy savings techniques, even if not justified by normal business considerations. By 1980, we believe that additional energy demand reductions from the GNP-predicted trend could total about 8% in the United States, 6%-7% in Japan and Canada, and 5%-6% in Western Europe.

Equation-predicted energy consumption, modified to account for increased prices and conservation measures in each of the four major industrial areas, are presented in Table A-1. As the table shows, in 1980 the total equation-predicted demand for the four areas, as modified, is 86.3 million b/d.

Table A-1

## Major Developed Countries: Projected Energy Demand

	Million b/d of Oil Equivalent						
	1974	1975	1976	1977	1978	1979	1980
<b>Total</b>							
Total predicted by equation	76.6	78.2	79.8	81.5	84.0	88.1	92.2
Total reductions for price changes and conservation measures	-4.2	-4.7	-4.8	-4.8	-5.1	-5.4	-5.9
Total estimated demand	72.4	73.5	75.0	76.7	78.9	82.7	86.3
<b>United States</b>							
Demand predicted by equation	38.5	39.1	39.7	40.3	41.6	43.8	45.9
Reduction for price change and conservation measures	-2.1	-2.6	-2.7	-2.7	-2.9	-3.1	-3.4
Estimated demand	36.4	36.5	37.0	37.6	38.7	40.7	42.5
<b>Western Europe</b>							
Demand predicted by equation	26.2	26.8	27.4	28.0	28.7	29.7	30.8
Reduction for price change and conservation measures	-1.5	-1.3	-1.3	-1.3	-1.4	-1.4	-1.5
Estimated demand	24.7	25.5	26.1	26.7	27.3	28.3	29.3
<b>Japan</b>							
Demand predicted by equation	7.6	7.8	8.0	8.2	8.5	9.0	9.5
Reduction for price change and conservation measures	-0.4	-0.5	-0.5	-0.5	-0.5	-0.6	-0.6
Estimated demand	7.2	7.3	7.5	7.7	8.0	8.4	8.9
<b>Canada</b>							
Demand predicted by equation	4.3	4.5	4.7	5.0	5.2	5.6	6.0
Reduction for price change and conservation measures	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.4
Estimated demand	4.1	4.2	4.4	4.7	4.9	5.3	5.6

## APPENDIX B

### ENERGY SUPPLIES OF MAJOR DEVELOPED COUNTRIES

Domestic energy supplies (including non-oil imports) in the major developed countries – United States, Western Europe, Japan, and Canada – are expected to grow at an average annual rate of about 5% between 1975 and 1980. The largest increases will occur in the latter part of the period, primarily as a result of increased availability of Alaskan and North Sea oil. Supply projections for the major developed countries are shown in Table B-1.

#### United States

Net domestic supplies of energy (excluding oil imports) in the United States are expected to increase from 30 million b/d in 1975 to 35.1 million b/d in 1980. The increase is largely attributable to the availability, beginning in late 1977, of Alaskan oil and to the projected intensification of domestic coal exploitation. Production of natural gas is expected to fall throughout this period. Our 1980 production figure, 8.8 million b/d of oil equivalent, is an unpublished FPC estimate that assumes gradual decontrol of gas prices. The estimate is consistent with a fairly sharp rise in discovery of new reserves during 1975-80. Because production continues to exceed reserve additions, however, gas production declines steadily through 1980. Gas imports from Canada are expected to hold steady; only small quantities of Algerian LNG will be available, toward the end of the decade. Coal exports will increase slightly, at a rate less than that for domestic production. The contribution of nuclear energy will more than double by 1980, yet will provide only 6% of domestic supply. Hydroelectric power will retain its share of about 5% during 1975-80.

#### Western Europe

We expect total energy supplies in Western Europe (including imported coal and natural gas) to increase from 11.8 million b/d of oil equivalent in 1975 to 18.6 million b/d in 1980. Expansion of North Sea oil and gas, although less than has been anticipated, will boost their share in total supply (excluding imported oil) from 35% in 1975 to 45% in 1980. Production of oil is expected to increase from about 700,000 b/d to 3.5 million b/d. Coal will probably remain the single most important internal fuel source, with production holding fairly constant and imports rising slightly in this period. Nuclear energy will be providing about 10%

of supply in 1980, compared with 4% in 1975. Only a small gain in the production of hydroelectric power will occur.

### **Japan**

Japanese energy production from domestic sources and net non-oil imports will grow from about 2.3 million b/d to 3.5 million b/d during 1975-80. Domestic production of coal and natural gas will probably remain constant. Coal imports should rise about 55%, and imports of LNG are expected to increase from the equivalent of 200,000 b/d in 1975 to 400,000 b/d in 1980. The use of nuclear energy will jump from 4% to 11% of projected domestic supply, and hydroelectric power will increase slightly to the equivalent of 800,000 b/d in 1980. Indigenous Japanese oil production may reach about 100,000 b/d by the end of the decade.

### **Canada**

Canada can look forward to only a moderate growth in domestic energy supplies. Total production and net non-oil imports are projected to rise 7.5%, from 4 million b/d in 1975 to 4.3 million b/d in 1980. Moreover, all this increase is expected to occur in 1980, with few changes between 1975 and 1979. Domestic oil production will decline slightly if, as expected, government tax and price policies continue to hamper exploration and development. Production of natural gas should register only a moderate increase. By 1976-77, Canada is expected to end imports of US coal; coal's overall contribution to the energy supply probably will hold steady at approximately 400,000 b/d. Small gains in hydroelectric and nuclear energy, totaling 200,000 b/d of crude oil equivalent, between 1975 and 1980 are projected.

### **Methodology**

The projections of energy supplies in Table B-1 were derived from a variety of published sources, unpublished estimates, and projections made especially for this memorandum. The principal published sources included reports of US and foreign government agencies, trade associations, and the technical press. *Energy Prospects to 1985*, published in December 1974 by the Organization for Economic Cooperation and Development, was especially valuable in filling some of the gaps. Unpublished estimates of the US Federal Power Commission and the National Coal Association were used for some of the US natural gas and coal production figures.



We made a special effort to update projections of hydroelectric and nuclear energy production in all four country groups and of West European oil and gas production. Projections were made of annual end-of-year hydroelectric and nuclear generating capacity through 1980 based on the most recent national development plans. From these projections, midyear capacities and annual electricity production estimates were derived using average utilization factors for hydroelectric and nuclear power observed in 1973-74.

Historical data in this appendix may vary slightly from data shown elsewhere because of different conversion factors between the various energy sources used in some sources. Normal statistical units for each fuel were converted to barrels per day of oil equivalent on a consistent basis where possible. In particular, the heat value used for crude oil was 5.62 million BTUs per barrel. The primary energy input equivalent of hydroelectric and nuclear power (the amount of oil which would be required to generate an equivalent amount of electricity) was used for these two energy sources. US oil production data include natural gas liquids, but exclude refinery processing gain.

Table B-1

## Major Developed Countries: Domestic Energy Production and Net Non-Oil Imports

	Million b/d of Oil Equivalent							
	1973	1974	1975	1976	1977	1978	1979	1980
<b>United States</b>	<b>31.1</b>	<b>30.4</b>	<b>30.0</b>	<b>30.4</b>	<b>30.9</b>	<b>32.6</b>	<b>33.5</b>	<b>35.1</b>
Oil <sup>1</sup>	11.0	10.5	10.1 <sup>2</sup>	10.0 <sup>3</sup>	9.9 <sup>4</sup>	11.0 <sup>3</sup>	11.4 <sup>3</sup>	12.2 <sup>4</sup>
Natural gas	11.7	11.4	10.4 <sup>5</sup>	10.0 <sup>6</sup>	9.8 <sup>6</sup>	9.6 <sup>6</sup>	9.4 <sup>6</sup>	9.4 <sup>7</sup>
Coal	6.6	6.6	7.1 <sup>8</sup>	7.7 <sup>3</sup>	8.2 <sup>4</sup>	8.7 <sup>3</sup>	9.1 <sup>3</sup>	9.6 <sup>4</sup>
Hydroelectric <sup>9</sup>	1.4	1.4	1.5	1.6	1.7	1.7	1.8	1.8
Nuclear <sup>9</sup>	0.4	0.5	1.0	1.1	1.3	1.6	1.8	2.1
<b>Western Europe</b>	<b>10.6</b>	<b>10.9</b>	<b>11.8</b>	<b>12.8</b>	<b>14.3</b>	<b>15.7</b>	<b>17.0</b>	<b>18.6</b>
Oil	0.4	0.4	0.7	1.1	1.6	2.4	2.9	3.5
Natural gas	2.6	3.0	3.4	3.8	4.3	4.5	4.7	4.9
Coal	5.0	4.9	4.8	4.8	5.0	5.2	5.4	5.8
Hydroelectric <sup>9</sup>	2.3	2.3	2.4	2.4	2.5	2.5	2.6	2.6
Nuclear <sup>9</sup>	0.3	0.4	0.5	0.7	0.9	1.1	1.4	1.8
<b>Japan</b>	<b>1.8</b>	<b>2.0</b>	<b>2.3</b>	<b>2.5</b>	<b>2.8</b>	<b>3.1</b>	<b>3.4</b>	<b>3.5</b>
Oil	Negl.	Negl.	Negl.	Negl.	Negl.	Negl.	0.1	0.1
Natural gas	0.1	0.2	0.3	0.3	0.3	0.4	0.4	0.5
Coal	1.2	1.2	1.3	1.4	1.5	1.6	1.7	1.7
Hydroelectric <sup>9</sup>	0.5	0.5	0.6	0.6	0.7	0.7	0.8	0.8
Nuclear <sup>9</sup>	....	0.1	0.1	0.2	0.3	0.4	0.4	0.4
<b>Canada</b>	<b>4.3</b>	<b>4.1</b>	<b>4.0</b>	<b>4.1</b>	<b>4.1</b>	<b>4.1</b>	<b>4.0</b>	<b>4.3</b>
Oil	2.1	2.0	1.8	1.8	1.7	1.7	1.6	1.6
Natural gas	1.0	0.8	0.9	1.0	1.0	1.0	1.0	1.1
Coal	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.4
Hydroelectric <sup>9</sup>	0.8	0.8	0.9	0.9	0.9	1.0	1.0	1.0
Nuclear <sup>9</sup>	Negl.	0.1	0.1	0.1	0.1	0.1	0.1	0.2

1. Including natural gas liquids.

2. FEA, *Monthly Energy Review*, Jun 75 (average of first four months of 1975).

3. Interpolated.

4. FEA, Project Independence (business-as-usual projection) less estimated exports in the case of coal.

5. FEA, *Monthly Energy Review*, Jun 75 (average of first four months of 1975) plus estimated imports.

6. Projected from historical reserve-production ratios and assuming a 10% annual increase in finding rate to estimate new discoveries plus estimated imports.

7. Unpublished FPC estimate.

8. National Coal Association estimate.

9. Primary energy equivalent (10,300 BTU per KWH).

## APPENDIX C

### PROJECTED OIL SUPPLY POSITION OF NON-OPEC LDCs, AND OTHER DEVELOPED COUNTRIES

As a group, the non-OPEC LDCs and other developed countries (such as Australia, and New Zealand) will still be importing oil in 1980. Oil consumption as well as production by this group will increase substantially - 37% for consumption and 117% for production between 1973 and 1980. We estimate that in 1980 these nations will be consuming 9.2 million b/d and producing 7.6 million b/d (see Table C-1).

#### Non-OPEC LDCs

The projected oil deficit in non-OPEC LDCs is about 1.1 million b/d in 1980, down sharply from 3 million b/d in 1973. Individual countries will become large net exporters, and most of this oil may well be available to OECD countries. Supplies of oil from non-OPEC LDCs could meet 15% of the projected needs of OECD countries (other than Australia and New Zealand) in 1980, estimated at approximately 25 million b/d: (a) Bolivia, Mexico, Angola, Malaysia-Brunei, Trinidad and Tobago, Congo, and Zaire could provide more than 2.4 million b/d; and (b) Arab countries not presently members of OPEC - Bahrain, Egypt, Oman, Syria, and Tunisia - could supply another 1.25 million b/d.

Between 1973 and 1980, the crude oil output of non-OPEC LDCs is expected to expand by about 13% annually, reaching 7.2 million b/d in 1980. The largest jumps in production will occur in Egypt, Mexico, and Brazil - although Brazil is projected to remain a net oil importer.

We project that oil consumption in non-OPEC LDCs will grow at an average annual rate of 4.7% between 1973 and 1980, compared with the 8.2% rate for the period 1969-73. This projection reflects our belief that economic growth in the LDCs will be less rapid in coming years than in the recent past and that high prices will encourage conservation in the use of oil and a small shift to other fuels.

Projected growth rates of oil consumption differ greatly among individual nations. Important producing countries such as Mexico and Egypt will not be under the same constraints as certain nations that will have to import a large portion

of their oil supplies – for example India, Taiwan, and the Philippines. Other countries, notably Brazil and South Africa, probably will have sufficient export earnings to pay for oil imports.

For the non-OPEC LDCs as a group, the rapid growth in oil output promises to reduce net imports from 3 million b/d in 1973 to about 1.1 million b/d by 1980. Twelve countries will account for all oil exports. Non-OPEC LDCs will be able to satisfy a portion of the import needs of OECD nations only if the surpluses of individual producers are channeled to these countries, leaving the needs of other LDCs to be satisfied by OPEC states.

#### **Australia and New Zealand**

Throughout the remainder of this decade, crude oil production in Australia and New Zealand will remain stable at about 400,000 b/d. Consumption, on the other hand, is expected to grow at an annual rate of 4.6%, increasing from 675,000 b/d in 1973 to 925,000 b/d by 1980. Oil import requirements thus should rise about the same as consumption, reaching 500,000 b/d in 1980. We believe OPEC nations will provide the bulk of these requirements.

**Table C-1**  
**Non-OPEC LDCs and Other Developed Countries:**  
**Projected Oil Supply Position**

	Million b/d					
	1973			1980		
	Con- sumption	Pro- duction	Net Exports	Con- sumption	Pro- duction	Net Exports
<b>Total</b>	<b>6.7</b>	<b>3.5</b>	<b>-3.3</b>	<b>9.2</b>	<b>7.6</b>	<b>-1.6</b>
Non-OPEC LDCs	6.0	3.1	-3.0	8.3	7.2	-1.1
Latin America	3.1	1.6	-1.5	4.3	4.4	0.1
Africa	0.7	0.4	-0.3	1.0	1.3	0.3
Near East	0.3	0.6	0.2	0.5	0.7	0.2
Far East	1.9	0.5	-1.4	2.5	0.8	-1.7
Other Developed Countries	0.7	0.4	-0.3	0.9	0.4	-0.5

## APPENDIX D

### OUTLOOK FOR CHINESE OIL TRADE

Chinese crude oil production is expanding rapidly, the result of more than a decade of priority investment. From 570,000 b/d in 1970, output more than doubled to 1.3 million b/d by 1974 and will reach an estimated 1.6 million b/d in 1975. We expect the industry to continue growing at more than 20% a year through 1980.

China's petroleum industry began to meet domestic demand fully about 1963. The small quantities of crude imported by Peking since then from the Near East and Albania apparently have been prompted by considerations of trade balances and/or to ease oil transport to south China. In 1973 the Chinese began exporting crude to non-Communist countries. Japan, by far the main customer, took 20,000 b/d in 1973 and about 80,000 b/d in 1974 and has signed up for about 155,000 b/d in 1975. A pact will probably be signed by early next year to provide for exports to Japan rising to perhaps 1 million b/d annually by 1980.

The percentage of future Japanese oil imports from the Near East and Indonesia almost certainly will be reduced to make room for Chinese crude. In the meantime, the Japanese have taken advantage of the availability of Chinese oil to press down the price of Indonesian crude.

Peking refuses to join OPEC, presumably to preserve freedom to determine output levels and export prices. China still lacks outlets to large world markets other than Japan. Peking may be able to sell some crude immediately to major oil companies seeking a cost advantage in their Far East operations.

## APPENDIX E

### OUTLOOK FOR SOVIET AND EAST EUROPEAN OIL TRADE

The USSR has adequate oil resources to meet increasing domestic needs and to maintain exports to Eastern Europe and the West at or slightly above present levels through 1980 (see Table E-1). We believe, however, that the annual rate of increase in domestic production will decline sharply during the next five years, to less than 4% per year compared with 6.5% annually in 1971-75. At the same time the average annual rate of growth in oil consumption probably will decrease from about 7% in 1971-75 to about 5% during 1976-80 as the Soviets strive to conserve fuel.

The Minister of the Petroleum Industry has announced a preliminary goal for production of 12 million b/d in 1980. In view of the technological problems coupled with Soviet development in remote and inhospitable areas, and the failure during 1972-75 to meet oil production goals for the first time, we estimate that Soviet crude oil output in 1980 will be 11.6 million b/d. In recent years the rate of discovery of new oil reserves has fallen behind the rate of increase in production, and the requirement for new production capacity to offset the depletion of old fields is rising rapidly. Despite the rapid development of West Siberian oilfields, increasing production from this area may, within a few years, be unable to meet the need for oil from new sources.

The USSR plans to provide about two-thirds of Eastern Europe's total oil supply during the next five years, and deliveries will reach about 1.5 million b/d by 1980 (see Table E-1). Some of the oil that the USSR supplies to Eastern Europe is procured from OPEC countries, primarily Iraq, through barter deals. In 1974 the volume of OPEC oil procured amounted to only about 100,000 b/d, a drop from 300,000 b/d in 1973. Much of the decline results from Soviet refusal to pay hard currency to Iraq for its oil. By 1980, however, the USSR could obtain some 400,000 b/d of OPEC oil. Iraq is to pay the USSR partly in oil for aid in development of the North Rumaila oilfield, and Libya is likely to pay the USSR partly in oil for military equipment.

East European crude oil production will remain stagnant through 1980 at about 400,000 b/d. To meet rising demand for oil, even at a lower average rate of annual increase than during 1971-75, East European countries will have to obtain about 700,000 b/d of oil from OPEC countries in 1980, primarily via barter

wherever possible but also by direct purchases (see Table E-2). Thus, Soviet and East European demand for OPEC oil may total 1.1 million b/d in 1980 while their exports to the West will total only about 1.4 million b/d. Net exports to the Free World thus are expected to decline from about 800,000 b/d last year to only about 300,000 b/d in 1980.



Table E-1

## USSR: Estimated Oil Supply and Demand

	Million b/d of Oil Equivalent				
	1973	1974	1975	1977	1980
Supply					
Domestic production	8.4	9.0	9.6	10.4	11.6
Imports	0.3	0.1	0.1	0.2	0.4
Demand					
Domestic consumption	6.4	6.8	7.2	7.9	9.2
Available for export:	2.3	2.3	2.5	2.7	2.8
To Eastern Europe	1.1	1.2	1.3	1.4	1.5
To other Communist countries	0.3	0.2	0.2	0.2	0.2
To the West	0.9	0.9	1.0	1.1	1.1

Table E-2

## Eastern Europe: Estimated Oil Supply and Demand

	Million b/d of Oil Equivalent				
	1973	1974	1975	1977	1980
Supply					
Domestic production	0.4	0.4	0.4	0.4	0.4
Imports	1.4	1.5	1.6	1.8	2.2
From USSR	1.1	1.2	1.3	1.4	1.5
From other sources	0.3	0.3	0.3	0.4	0.7
Demand					
Domestic consumption	1.55	1.65	1.75	1.96	2.3
Exports	0.2	0.2	0.2	0.2	0.3